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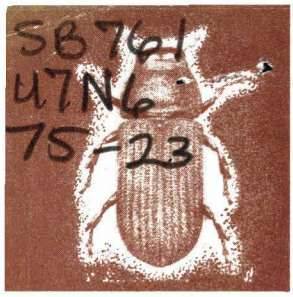

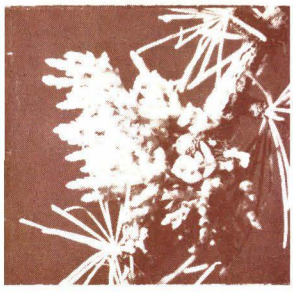

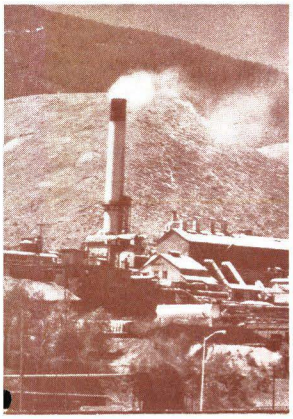

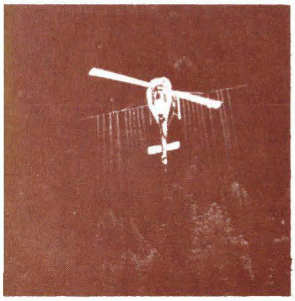

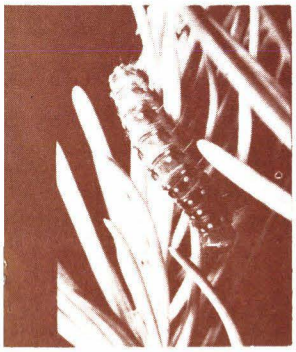

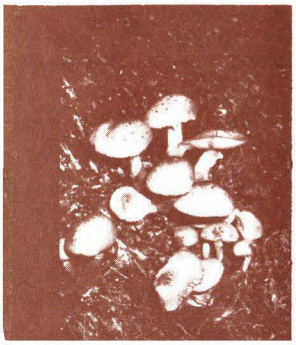

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December 1975

STATUS OF WESTERN FALSE HEMLOCK LOOPER INFESTATION IN THE UPPER FLATHEAD VALLEY, MONTANA

by

Hubert Meyer 1/ and Steve Kohler 2/

In 1973 defoliation was noticed on Douglas-fir trees along the north end of Flathead Lake. Investigation revealed (Dewey and Kohler, 1974) the causal agent to be a western false hemlock looper, *Neptyia freemani* Munroe, and the extent of damage was lightly to heavily defoliated localized spots near Bigfork and Somers and ranging north to Kalispell.

Because epidemic levels of this insect were reached in British Columbia (Ross, *et al.*, 1973) a followup of this infestation was made in late summer and fall of 1974. Aerial surveys in late summer were made to determine areas of defoliation and an egg mass survey was made in December to determine probable status in 1975.

Figure 1 indicates 1974 and 1973 aerially visible defoliation and 1974 egg mass collection sites. Egg mass collections consisted of two 24-inch branches taken at approximately 20-foot elevation from each of five trees per site. Branches were returned to the laboratory, measured, and carefully examined for total egg numbers which are listed in Table 1.

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Table 1.--False hemlock looper eggs from collection sites, Upper Flathead Valley, Montana.

Area	Total new eggs	Total old eggs	Ratio of new to old eggs	New eggs per sq. ft. foliage
1	882	418	2.11:1	18.60
2	104	140	.71:1	2.03
3	281	443	.63:1	5.51
4	28	108	.30:1	.80
5	1188	357	3.33:1	26.01
6	877	67	13.09:1	23.54
7	390	353	1.10:1	5.65
Average	535	269	1.98:1	11.73

With little background on which to base predictions, it is difficult to estimate next year's situation. A lack of satisfactory rearing conditions prevented obtaining reliable egg parasitism data. Last year's efforts by Dewey indicated a parasitism rate of somewhere above 10 percent. It is feasible to conclude it would be from nearly the same to several times greater this year.

Total egg numbers this year were down over 1973 counts, with half the plots showing quite low numbers. The three heavier plots, numbers 1, 5, and 6, are only equal to lower counts of 1973 plots. These three plots were taken at Somers, the area experiencing the most severe defoliation in 1974,and at two new spots that did not show up in 1973.

The area was visited in late August when most larvae were in their final instar or pupating and counts were not made; however, numerous larvae were observed to be parasitized and some even showed symptoms of virus infections (Kohler, 1974).

Defoliation increased slightly in intensity in 1974, but actually decreased in the area. Two new isolated spots were detected north of Kalispell, but another isolated spot near Bigfork apparently collapsed.

From the above data, it seems logical to predict light to moderate spotty defoliation in this area in 1975. Heavy defoliation or a noticeable increase in defoliated area does not seem likely as considerably higher winter 1973-74 egg populations brought only a small summer 1974 change.

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